DOCUMENT RESUME

ED 394 916 SP 036 588

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TITLE The Technology Scholarship Program for Alabama Teachers at Jacksonville State University.
PUB DATE 29 Oct 95
NOTE 14p.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Admission Criteria; Computer Software; Computer Uses in Education; Distance Education; *Educational Technology; *Graduate Study; Higher Education; *Inservice Teacher Education; Internet; Multimedia Instruction; Public School Teachers; *Scholarships; State Legislation; State Programs; Technological Literacy; Technology Education
IDENTIFIERS *Alabama; Jacksonville State University AL

ABSTRACT

The Alabama Commission on Higher Education (ACHE) recently established the "Technology Scholarship Program for Alabama Teachers" (TSPAT). Jacksonville State University (JSU) is one of the state institutions participating in the program, which was funded by Act 93-636 of the Alabama Legislature. The program addresses technological literacy, multimedia computer-based instructional technologies (both current and emerging), popular instructional software, distance learning, and communication "superhighways." The targeted audience includes graduate level, employed teachers from Alabama public schools who are currently enrolled in a participating institution of higher education. Emphasis is on equipping teachers with diverse technologies that can be used effectively to stimulate creative thought in children. TSPAT has been in effect since 1994, and early indications have been favorable. This article familiarizes other educators with this unique teacher education program, and suggests ways to benefit the larger academic community and the public schools in particular. The article is divided according to: (a) teacher selection criteria, (b) specialized technology courses, (c) implications for the academic community, and (d) future goals. (Author)

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The Technology Scholarship Program for Alabama Teachers at Jacksonville State University

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October 29, 1995

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Abstract

The Alabama Commission on Higher Education (ACHE) recently established the "Technology Scholarship Program for Alabama Teachers"(TSPAT). Jacksonville State University (JSU) is one of the state institutions participating in the program, which is funded by Act 93-636 of the Alabama Legislature. The program addresses technological literacy, multimedia, computer-based instructional technologies (both current and emerging), popular instructional software, distance learning, and communication "superhighways" (*e.g.*, Internet). The targeted audience includes graduate level, employed teachers from Alabama public schools who are currently enrolled in a participating institution of higher education. Emphasis is on equipping teachers with diverse technologies that can be used effectively to stimulate creative thought in children. TSPAT has been in effect since 1994, and early indications have been favorable. This article familiarizes other educators with this unique teacher education program, and suggests ways to benefit the larger academic community, and the public schools in particular. The article is divided according to: (a) teacher selection criteria, (b) specialized technology courses, (c) implications for the academic community, and (d) future goals.

The Technology Scholarship Program for Alabama Teachers at Jacksonville State University

Technology is assuming a rapidly increasing role in virtually every aspect of modern life, including such diverse areas as business (McKenney, 1994), medicine (Berkowitz & Swan, 1993), and education (Kanning, 1994). Consistent with this paradigm, the Alabama Commission on Higher Education (ACHE) recently established the "Technology Scholarship Program for Alabama Teachers" (TSPAT). Jacksonville State University (JSU) is one of the statewide institutions participating in the program, which is funded by Act 93-636 of the Alabama Legislature. The primary purpose of TSPAT is to provide teachers with diverse technologies that can be used to effectively stimulate children to think creatively. Improved technology has created "the information age," literally inundating the learning environment with data. The key is to help teachers and students work together in assimilating this information in practical and interesting ways.

Other foci of TSPAT are multidimensional. More specifically, the program also addresses technological literacy, multimedia, computer-based instructional technologies (both current and emerging), popular instructional software, distance learning, and communication "superhighways" (*e.g.*, Internet). The program's interaction with public schools is of particular importance, therefore, the targeted audience includes graduate level, employed teachers, currently enrolled in a participating institution of higher education, and who concurrently wish to improve the gravity of their classroom instruction.

TSPAT has been in effect since 1994, and early indications have been favorable. The purpose of this article is (1) to familiarize other educators with this unique teacher education program, and (2) to suggest ways it might be beneficial to the larger academic community. The article is divided according to: (a) teacher selection criteria, (b) specialized technology courses, (c) implications for the academic community, and (d) future goals.

Teacher Selection Criteria

Teacher applicants to the TSPAT Program must be certified, full-time Alabama public school teachers who are pursuing, or who already hold, master's degrees. Applicants must teach English, science, mathematics, social science, history, or children in kindergarten to grade six (or any other state department designated special areas) and must agree to enroll in a minimum of three technology courses, including (l) Computer-Based Instructional Technologies, (2) Current and Emerging Instructional Technologies, and (3) Curriculum Integration of Technology. Teachers agree, prior to being granted a TSPAT award, to teach in Alabama public schools for three years after completing a master's degree. Funds are awarded on a "first-come, first-serve" basis each term, with twenty-five percent of available funds earmarked for minority applicants. (Teachers who already work extensively with computers and technology, as well as those with vocational education emphasis, are not eligible for TSPAT. The legislature's intent was to focus on teachers who had traditionally been less " technology oriented.")

Specialized Technology Courses

The three TSPAT-specific courses are: Computer-Based Instructional Technologies, Current and Emerging Instructional Technologies, and Curriculum Integration of Technology. Computer-Based Instructional Technologies address five broad areas, including (a) the historical and social context of computer technology development, including current hardware configurations, knowledge of computer software for grades K-12, and the teacher's role in using technology to stimulate creative use of information, (b) computer systems, including hardware and operating systems, and ergonomic factors (*e.g.*, body posture, waist positions, monitor distance) in classroom computer applications, (c) computer software, including database spreadsheet and graphics applications, (d) computer operations skills such as navigating desktop environments and common commands, and (e) computer handling and adaptation skills, which stress the operation and installation of various devices.

Current and Emerging Instructional Technologies includes: (a) knowledge of software and applications of emerging technologies through video programming (*e.g.*, fax, voice mail, LAN, WAN, CD- ROM storage, and optical devices including compressed video), (b) computer operations skills (*e.g.*, text, graphic layouts), (c) computer graphics skills (*e.g.*, draw or paint programs), (d) hypermedia skills (*e.g.*, Hypercard), (e) telecommunications skills (*e.g.*, E-Mail, fax, satellite, two-way video phone, IITS-Inter Campus Telecommunication System-University of Alabama), and (f) optical technology skills in using CD-ROM, videodisk, compressed video, optical

scanner, LCD projection systems, camcorder, and on board editing deck.

Curriculum Integration of Technology involves: (a) planning curriculum integration with emphasis on how information gathered *via* technology can be applied in functional ways, (b) instructional design (*e.g.*, use of objectives, diagramming content, and implementation), (c) production technique skills (*e.g.*, creative problem-solving, accessing one-way and two-way interactive distance programs), and (d) validation skills (*e.g.*, determining practicality of data, evaluating product effectiveness, writing assessments).

With the State placing such a strong emphasis on specific technologies, it is especially important for university faculty to focus on practical ways that each tool can be used. Someone once said, "This is the information age" rather than the "age of technology." Therefore, faculty have the responsibility for applying technology generated ideas in meaningful and creative manners. Critical thinking, reflections on societal values, and abstract reasoning can all reach new levels when technology is properly applied. Teachers properly equipped with technological skills, experienced in running available software, and able to use creative applications effectively can then return to their students with a great deal to offer.

Equipment in the Multimedia Instructional Laboratory

Technology was specifically selected to accommodate the TSPAT curriculum. More specifically, a laboratory was designed to facilitate instruction in current and emerging technologies. Hardware and software selection reflected the TSPAT requirement that teachers be familiar with both PC and Macintosh platforms. The

laboratory exposes both undergraduate and graduate students in teacher education to an instructional model involving both human and non-human interactions.

Fifteen PC multimedia computers were assembled on campus. The typical platform is a 80486 DX2 multimedia PC. Features include: 540 MB hard drives, 16 MB of RAM, sound blaster cards, and 1 MB VRAM. Each MPC has a built-in CD-ROM player and 3 1/2" floppy drive. In addition, the laboratory has a combination of Quadra 660AV and Power PC Macintosh computers. Each MAC computer also has a built-in CD-ROM player and 3 1/2" floppy drive with 16 MB of RAM.

The issue of RAM requirements is a complex spiral in that the size of application software and multi-tasking continues to require increasing capacity. The consumer is looking for software that is most cost-effective. Programmers compete with each other in determining how many "bells and whistles" can be included in an application. New 32 bit operating systems such as Windows 95 allow the user to multi-task by having the computer print or receive faxes in the background while they work in some other application. This feature is extremely desirable; however, its benefits can only be realized in machines with appropriate hardware. Both multi-tasking and the size of applications increase the demand for RAM. The implications of this continual growth in the quest of the "cutting-edge" needs to be addressed from both a cost and logical posture.

The role of video in education is emphasized in the laboratory. Video production is accommodated with a Panasonic S-VHS AG-17 Proline Videocassette recorder with editing system. Video production makes possible video capture. The

role of video capture in assessment and portfolio development is illustrated. Scanned images are added to presentations as well as brochures by using a Microtek ScanMaker IIXE and Photoshop.

Timbuktu, a software application, was selected to allow instructors to see student screens and interact with them. Students can also see what the instructor is illustrating through a Liquid crystal display (LCD) and on top of a heat overhead projector that is connected to both the instructor's Macintosh and Multimedia PC. During daylight hours, the room is sometimes difficult to darken. As a result, the laboratory's nine television monitors are used to overcome the low intensity of the LCD by connecting the monitors in a series using the Presenter Plus MAC/PC, model DK 003, from Consumer Technology.

To allow for level three interactive video, eight pioneer laserdisk players were purchased. Video capture is facilitated through a Panasonic S-VHS Reporter AG455 Proline camcorder and an Apple Quicktake 100 digital camera.

The Laboratory is connected with a NuBus (a variation of Ethernet) topology that allows each computer to have an independent connection to the Compaq Proliant file sever. Additionally, access is provided to the RISC 6000 main frame computer by fiber optic connections. Access to Internet can occur through built-in modems while using the communication program in Microsoft Works, or through the fiber optic cable using the Netscape browser.

Implications for the Academic Community

The implications for the academic community are extensive. Students are exposed to an information age classroom with demonstrated applications. Graduates of the program take leadership roles in their schools through such diverse means as local technology committees and offering in-service programs at their home sites. Administrators often place these teachers on committees responsible for developing their respective school's five-year technology plans. For example, a local teacher appeared on a cable system sponsored technology workshop broadcast via fiber optics to area schools. She shared with other teachers how she used technology in a classroom setting.

In addition to interconnecting with cable systems, another product of TSPAT is a strengthening of the public school and university partnership. For example, TSPAT participants serve the public schools through a variety of in-service programs that highlight hands-on applications. In addition, K-12 students are encouraged to enroll in a College of Education free tutoring program that utilizes the new technology. In this manner young children receive tutoring with state-of-the-art technology. These experiences consequently serve as a catalyst to the public schools to improve their own facilities, and stimulate parents to learn more about modern technology.

Technology is viewed as an avenue for stimulating interaction between teachers and students, among peers, and between the classroom and the extended environment (e.g. Internet). As a tool technology allows the improvement of

student retention and achievement by addressing different styles of learning. The result should be enlightened and creative learners, ready to respond to a dynamic world.

Thus, the TSPAT Program is changing the way teachers view their classrooms and the way they teach their students to approach problem solving. As the technology becomes more "user-friendly," it becomes indispensable in daily classroom use. This use is then increasingly networked to other media centers, and also to the world at large.

Future Goals

Technology has dramatically and permanently altered communication. Hopefully, the systems currently used will accommodate needs for the next three to five years. Each system must, therefore, be upgradeable to ensure that software demands for memory can be accommodated.

Many area schools systems have innovative and highly publicized computer and distance learning programs. For example, one local school has formed a company that constructs computers, and sells them to other schools. Another offers Japanese (as a foreign language) and advanced math to a small number of talented high school students from a remote area. One goal of TSPAT is to integrate the talents, ideas, and interests from these exemplary programs into the college curriculum.

Economic development is one of the primary reasons TSPAT is funded. The previously agrarian Appalachian region simply must redirect its focus in a "high-

tech" world. The accompanying changes in attitude must begin early in life, and will be predicated in a large degree to actual experiences in school... experiences that must include modern technology.

The definitions of "classroom" and "daily schedule," and other traditional terms need to reflect the "changing face" of the technological revolution. Students no longer need to sit through forty nine minutes of structured lectures. The curriculum does not need to be the same for all students in a school, class or program. Technology allows for complete personal choice with new directions established frequently, or infrequently, as the individual may desire. The key word is flexibility, with personal mastery defined by the situation.

There are social implications as well. Technology is changing the traditional classroom. Time devoted to classroom discussions will need to be balanced with learning at workstations, in the car or bus, or at home. In a sense, the teacher becomes a manager of a high tech environment, while working to attain maximum social and personal development.

Interactive distance learning systems will increasingly receive emphasis primarily because of the rural nature of many parts of America. Interactive program distribution through the local cable company will soon make real time instruction possible. In addition, there is growing interest in the development of core curriculum courses to be offered over Internet and improved use of technology by faculty.

Technology, to be effective, must be more than valued; it must be valuable. It must be more than enjoyable; it must be educational. It must give more than data; it must produce thought. Recognizing these paradigms allows TSPAT faculty to work collectively with public school teachers in a healthy and synergetic way. The result will hopefully be better prepared youngsters and a brighter future for all.

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